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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,802	12/20/2000	Kazuo Takaoki	2185-0495P	4025

2292 7590 07/03/2002  
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EXAMINER
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KUHAR, ANTHONY J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 07/03/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/739,802

Applicant(s)

TAKAOKI ET AL.

Examiner

Anthony J Kuhar

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 24-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-31 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,6,7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-23, drawn to a catalyst, classified in class 502, subclass 152 and 163.
- II. Claims 24-31, drawn to a process for using a catalyst, classified in class 526, subclass 113.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the catalyst of invention I can be used in a process different than that of invention II, e.g. tumor therapy.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Groups I, restriction for examination purposes as indicated is proper.

During a telephone conversation between Cam Nguyen and John W. Bailey on 3/18/2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-23. Affirmation of this election must be made by applicant in replying to this Office action. Claims 24-31 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the phrase "wherein the coefficient represented by a linear combination is 0.4 or more" in parenthesis is indefinite because the parenthesis render it indefinite.

Claims 3, 12, 13, and 19 should only have one period.

In claims 8 and 9, the phrase in parenthesis renders it indefinite. The phrase "μ-oxo type compounds" is indefinite and confusing.

The period after the number "8" in claim 8 should be removed.

The period after the number "8" in claim 9 should be removed.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 683 184

A1.

EP '184 teaches a polymerization catalyst containing a transition metal compound from groups 3 to 10 of the periodic table or a metal or the lanthanide series (see page 18, lines 10-13). Formulas I and IV in the instant prior art teach substituted unsaturated cyclic hydrocarbon groups that bond with the transition metal such as cyclopentadienyl groups which may be substituted with a heteroatom such as phosphorus or nitrogen. Also connected with the transition metal can be  $\sigma$ -bond ligands such as a halogen or hydrocarbon group. Formula V on page 20 shows substituted or unsubstituted cyclopentadienyl groups may form a conjugated structure around the metal. Metallocenes are given as examples on page 26, lines 42-47.

An additional catalyst component is disclosed on page 25. These contain transition metals from groups 5 to 15. Page 25, line 30 teaches these compounds may contain large cyclic ligands such as a phthalocyanine or tetraphenylporphyrin group. Disclosed as a porphyrin compound is tetraphenylporphyrinzinc chloride tetrakis pentafluorophenyl borate, which is a structure substantially similar to that of formula II in the instant application, with zinc being a group 12 element (see page 26, line 60).

Further disclosed is an aluminoxane as another possible catalyst component (see page 25, line 2).

Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 510 602 A1.

EP '602 discloses the compound of formula I of the instant application (see page 4, formula III). Shown in this formula is aluminum as the central atom, but also disclosed as possibilities for the central atom are Group 2 to Group 12 metals such as magnesium, manganese, copper, cobalt, and zinc (see page 3, lines 52-53). The instant prior art discloses substituents A<sup>3</sup> which can be electron withdrawing (see page 4, lines 20-24). Halogen atoms are included as possible substituents. Taught is a aluminum tetra(pentafluorophenyl) porphyrin complex, which is substantially similar to that of formula II of the instant application. The instant prior art teaches other atoms which could replace the aluminum atom (see page 3, lines 52-53).

Claims 1-3 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Inoue '013 or Bremner '455 or Smirnov '944.

Inoue '013 discloses a porphyrin complex for addition polymerization containing zinc as the transition metal in figure 2.

Bremner '455 teaches a cobalt phthalocyanine complex for use in the polymerization of acrylamide in figure 1.

Smirnov '944 teaches the use of a cobalt complex of hematoporphyrin tetramethyl ester to catalyze the radical polymerization of styrene (see page 2807).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 8-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 683 184 A1 in view of EP 0 510 602 A1.

EP '184 teaches a polymerization catalyst containing a transition metal compound from groups 3 to 10 of the periodic table or a metal or the lanthanide series (see page 18, lines 10-13). Formulas I and IV in the instant prior art teach substituted unsaturated cyclic hydrocarbon groups that bond with the transition metal such as cyclopentadienyl groups which may be substituted with a heteroatom such as phosphorus or nitrogen. Also connected with the transition metal can be  $\sigma$ -bond ligands such as a halogen or hydrocarbon group. Formula V on page 20 shows

substituted or unsubstituted cyclopentadienyl groups may form a conjugated structure around the metal. Metallocenes are given as examples on page 26, lines 42-47.

An additional catalyst component is disclosed on page 25. These contain transition metals from groups 5 to 15. Page 25, line 30 teaches these compounds may contain large cyclic ligands such as a phthalocyanine or tetraphenylporphyrin group.

Further disclosed is an aluminoxane as another possible catalyst component (see page 25, line 2).

EP '184 does not disclose the use of the structure of formula I of the instant application, which is a specific example of a porphyrin.

However, EP '602 discloses the compound of formula I of the instant application (see page 4, formula III). Shown in this formula is aluminum as the central atom, but also disclosed as possibilities for the central atom are Group 2 to Group 12 metals such as magnesium, manganese, copper, cobalt, and zinc (see page 3, lines 52-53). The instant prior art discloses substituents A<sup>3</sup> which can be electron withdrawing (see page 4, lines 20-24). Halogen atoms are included as possible substituents. Taught is an aluminum tetra(pentafluorophenyl) porphyrin complex, which is substantially similar to that of formula 2 of the instant application. The instant prior art teaches other atoms which could replace the aluminum atom (see page 3, lines 52-53).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to take the catalyst composition as taught by EP '184, including the compound with the porphyrin group, and use the porphyrin complex as taught by EP '602, using the suggested metals besides aluminum. One of ordinary skill in the art would have been motivated



to do this because EP '602 teaches these porphyrin compounds act as polymerization initiators in the living polymerization of monomers (see page 3, lines 50-51).

*Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J Kuhar whose telephone number is 703-305-7095. The examiner can normally be reached on 8:00 am - 4:15 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stan Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-305-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

AK

AK  
July 2, 2002

  
Stanley S. Silverman  
Supervisory Patent Examiner  
Technology Center 1700